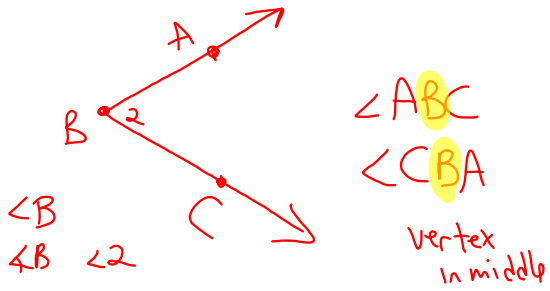
1.4 Measure and Classify Angles

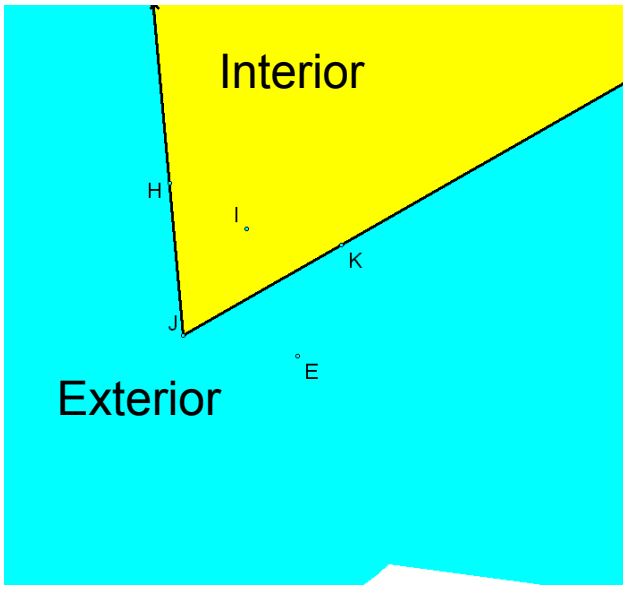
Angle-figure formed by 2 rays with a common endpoint



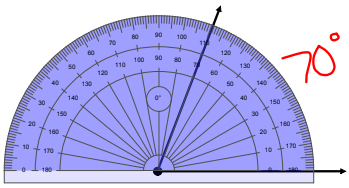
Rays are the sides of an angle

$\overrightarrow{BA}$ $\overrightarrow{BC}$

Common endpoint is the vertex

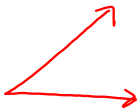


Postulate 3--Protractor Postulate--An angle can be positioned so that one ray ends with 0 and the othe end can be matched one-to-one with the real numbers between 0 and 180.

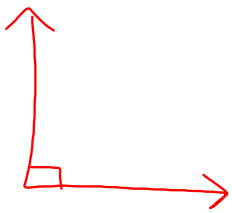


Classifying Angles

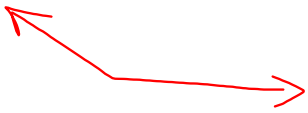
Acute angle-measures between 0° and 90°



Right angle-measures 90°

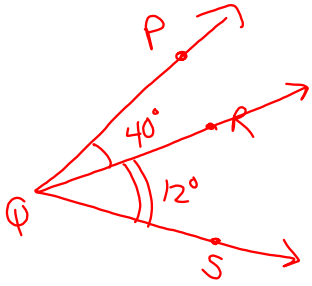


Obtuse angle-measures between 90° and 180°

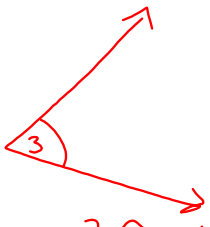


Straight angle-measures 180°

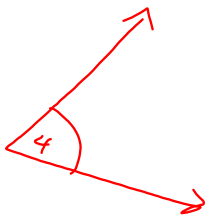
Postulate 4--The Angle Addition Postulate--If R is in the interior of ∠PQS, then
m∠PQR + m∠RQS = m∠PQS



Congruent angles-angles that have the same measurement



$\angle 3 \cong \angle 4$



$m\angle 3 = m\angle 4$

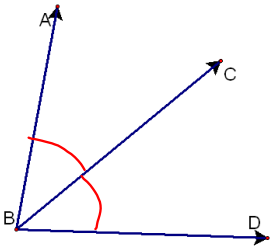
Angle Bisector-ray that divides an angle into 2 congruent angles

$\overrightarrow{BC}$ bisects ∠ABD

∠ABC ≅ ∠CBD

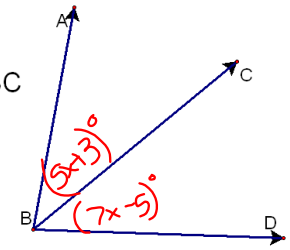
m∠ABC = m∠CBD

$m\angle ABC = \frac{1}{2} m\angle ABD$



ex: Solve for x.
Find the $m\angle ABC$

23°



$\overrightarrow{BC}$ bisects $\angle ABD$

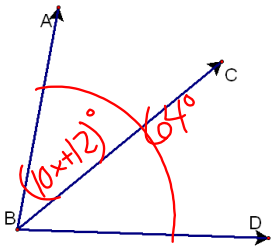
$m\angle ABC = 5x + 3$

$m\angle CBD = 7x - 5$

$5x + 3 = 7x - 5$

$4 = x$

ex: Solve for x.

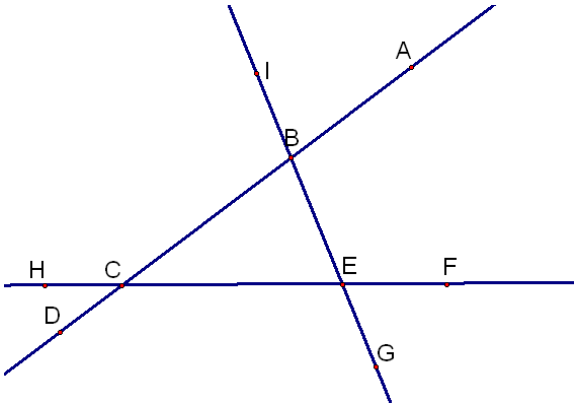


$\overrightarrow{BC}$ bisects $\angle ABD$

$m\angle ABC = 10x + 12$

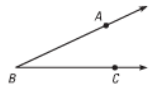
$m\angle ABD = 64$

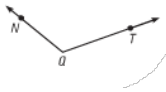
$x = 2$



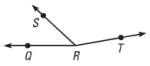
HW p28-30
#s 3, 4, 6-10, 15-20, 23-26, 41, 42

NAMING ANGLES AND ANGLE PARTS In Exercises 3–5, write three names for the angle shown. Then name the vertex and sides of the angle.

3. 

4. 

6. **NAMING ANGLES** Name three different angles in the diagram at the right.

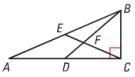


CLASSIFYING ANGLES Classify the angle with the given measure as *acute, obtuse, right,* or *straight.*

7. $m\angle W = 180°$
8. $m\angle X = 30°$
9. $m\angle Y = 90°$
10. $m\angle Z = 95°$

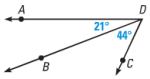
NAMING AND CLASSIFYING Give another name for the angle in the diagram below. Tell whether the angle appears to be *acute, obtuse, right,* or *straight.*

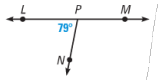
15. $\angle ACB$
16. $\angle ABC$
17. $\angle BFD$
18. $\angle AEC$
19. $\angle BDC$
20. $\angle BEC$



Find the indicated angle measure.

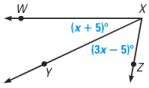
23. $m\angle ADC =$?
24. $m\angle NPM =$?



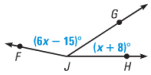


ALGEBRA Use the given information to find the indicated angle measure.

25. Given $m\angle WXZ = 80°$, find $m\angle YXZ$.

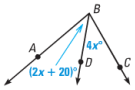


26. Given $m\angle FJH = 168°$, find $m\angle FJG$.



ALGEBRA In each diagram, $\overrightarrow{BD}$ bisects $\angle ABC$. Find $m\angle ABC$.

41.



42.